Ground Water Investigation Program (GWIP)

MBMG

Addresses specific groundwater questions across Montana

- ✓ Designed to support science based management in Montana
- ✓ Answer locally identified questions, crucial for water management;

*Understanding impacts and **lack** of impacts, both are equally important. Provide information so aquifers can be managed, Not just used.*

January 18-19, 2022
Water Policy Interim Committee

Project Areas

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- ✓ Water use associated with increased residential development
- ✓ Groundwater pumping affects – stream depletion
- ✓ Irrigation and the influence on groundwater and surface water recharge
- ✓ Enhancing recharge
- ✓ Nitrate and salinity issues in groundwater and surface water

GWIP Products

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- **Interpretive Report**
  Interpretation of the hydrogeology, addresses the water resource question
- **Groundwater Modeling Report** (if appropriate)
  Used to represent natural groundwater flow and to predict the affects of hydrologic changes
- A **Comprehensive Set of Hydrogeologic Data**
  Available through MBMG Ground-Water Information Center (GWIC), which is archived forever.

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Presentations

Inquiries

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Ground Water Steering Committee

MCA 2-15-1523

Voting Members

- Dept. Of Natural Resources and Conservation
- Dept. of Environmental Quality
- Dept. Of Agriculture
- State Library

Ex-Officio Members

i. legislative services division;
ii. board of oil and gas conservation;
iii. Montana Bureau of Mines and Geology;
iv. Montana university system;
v. county government, appointed by an organization of Montana counties;
vi. city, town, or city-county government, appointed by an organization of Montana cities and towns;
vii. each of the principal federal agencies. USGS, EPA, USDA, BLM, USBOR

Governor Appointees:

i. agricultural water users;
ii. industrial water users;
iii. a conservation or ecological protection organization; and
iv. the development community.

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Project Nominating Process

GWIP Nomination

- Project Purpose
- Study area
- Overview of the problem
- Use of project results
- Technical Urgency
- Supports Local, State or Federal Plans
- Complimentary investigations

Scoring matrix

- Closed or open basin
- Controlled Groundwater Area
- Impaired surface water
- Impaired groundwater
- Transferability
- Efficency of Effort
- GWSC input

Open Meeting
Project Prioritization

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2021 Project Rankings

West Billings	Water supply, quality
Eureka	Water supply, stream depletion
Irrigation Recharge	Fate of irrigation water on groundwater and surface water
Big Hole River	Irrigation return flows, temperature
Seeley Lake	Groundwater quality
West Flathead	Water supply and quality
Big Muddy Creek	Irrigation development, stream depletion
Southeast Helena	Water supply
Gallatin Valley	open pits and pond developments, groundwater and stream depletion

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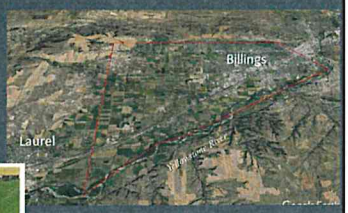
West Billings

Potential impacts from:
- Population growth (subdivisions)
  - septic contamination
- Loss of agricultural lands
  - Loss of recharge
- Changes in irrigation practices
  - Conversion of flood to sprinkler irrigation
  - Lining ditches
- Drought



Ground-water availability and quality concerns

Nominated by the Billings Public Works Department

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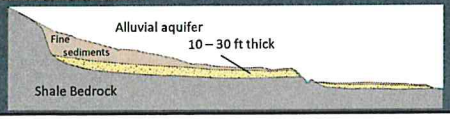
West Billings

Main alluvial aquifer
- 10 to 20 feet below ground
- 10-30 feet thick
- Artificial systems supported by irrigation



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Eureka

- Glacial Stratigraphy
- Limited hydrogeologic information
- Groundwater connection to the Tobacco River unknown
- Zone of poor water quality – high TDS

Nominated by Concerned citizens and Business people of Eureka

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Big Hole River/ Irrigation Recharge

Alluvial aquifer underlain by deep basin fill.

Credit: Network for Landscape Conservation

Credit: Big Sky Fishing.com

Nominated by the Big Hole River Watershed Committee

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Irrigation Recharge/Edgar

Thin alluvial aquifer that relies on recharge from irrigation to help support domestic supplies.

Nominated by the Carbon county Conservation District

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https://www.mbmg.mtech.edu/waterenvironment/gwip/main.asp

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